FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
12 in.	f/5.6	4.5 in. x 4.5 in.	Perkin-Elmer Corp.

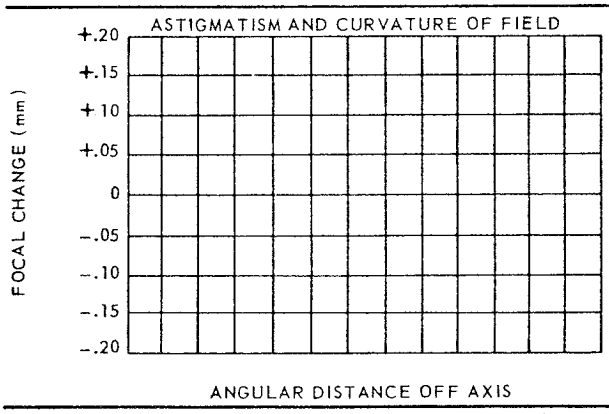
Photographic Resolving Power in Lines /mm

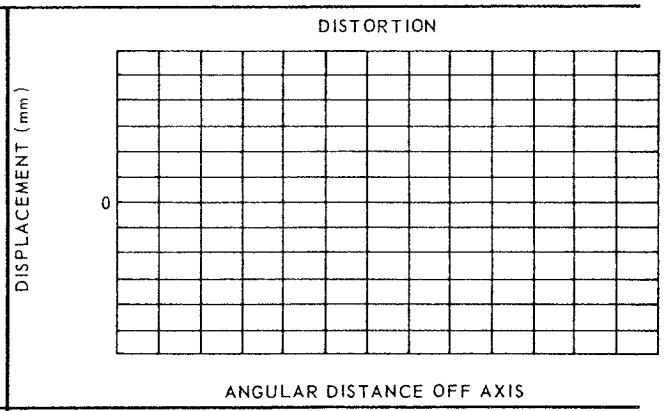
FIELD ANGLE (°)	0	2.5	5	7.5	10	12.5	15											
FILM Plus X, TARGET CONTRAST Medium, FILTER W-12																		
RADIAL	56	53	50	50	50	33	14											
TANGENTIAL	56	53	50	53	53	47	23											
FILM Plus X, TARGET CONTRAST Low, FILTER W-12																		
RADIAL	22	20	20	20	21	18	10											
TANGENTIAL	22	20	20	19	21	19	14											
FILM Plus X, TARGET CONTRAST High, FILTER W-12																		
RADIAL	70	59	67	67	71	56	20											
TANGENTIAL	70	63	79	67	71	56	31											
VISUAL, TARGET CONTRAST, FILTER																		
RADIAL																		
TANGENTIAL																		

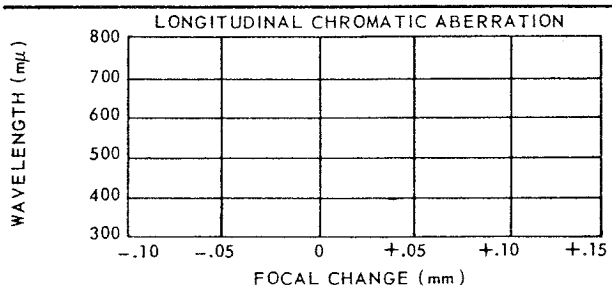
AWAR 48 L/mm

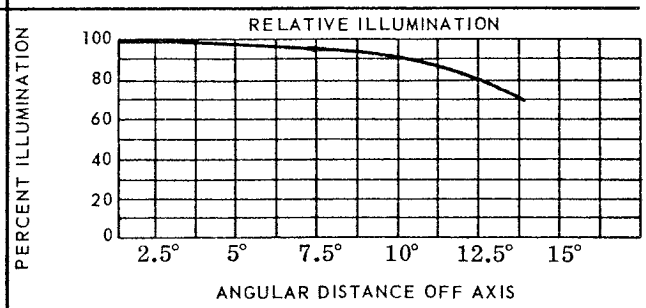
AWAR 20 L/mm

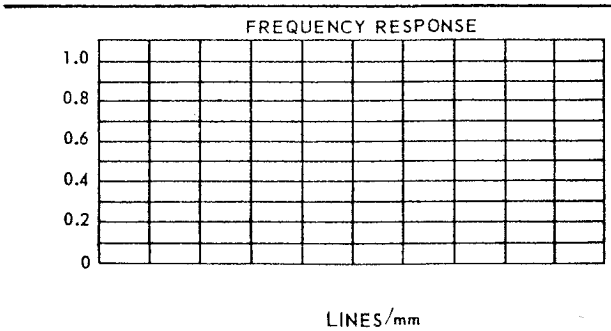
AWAR 67 L/mm

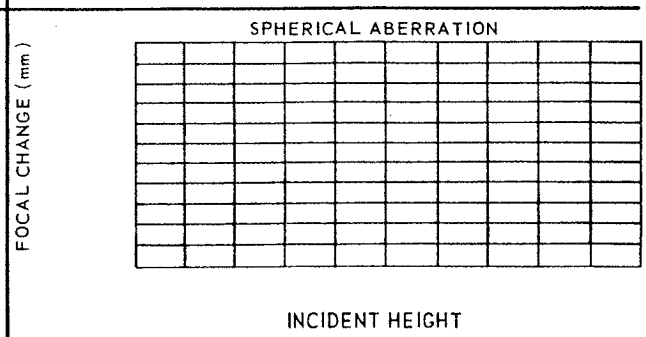












LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

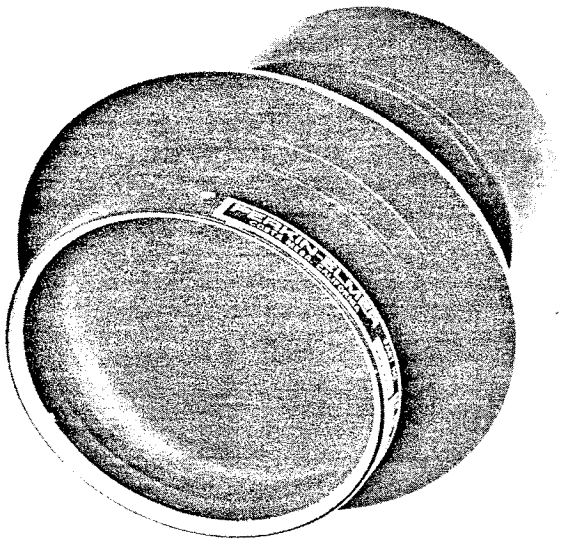
DATE
15 Sept. 1967

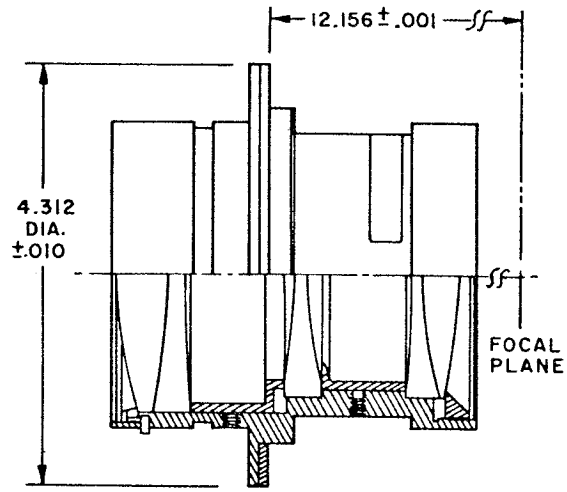
TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	RECON 550

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
12 in.	f/5.6	4.5 in. Pan	Perkin-Elmer Corp.

STOCK NO.	SPECIFICATION NO.	STATUS
		Current

GENERAL DESCRIPTION





CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 12 in. (304.8 mm)	TRANSMITTANCE 85%
BACK FOCAL DISTANCE 10.28 in. (261 mm)	COLOR CORRECTION 5461-6563 Å
FRONT VERTEX BACK FOCAL DISTANCE 13.7 in. (349 mm)	DISTORTION *(Maximum)* 30 microns
FLANGE FOCAL DISTANCE 12.1 in. (309 mm)	LENS CELL DIAMETER *(Maximum)* 3.1 in. (79 mm)
SEMI-FIELD ANGLE 15°	OVERALL LENGTH 4.0 in. (102 mm)
RELATIVE APERTURE f/5.6	WEIGHT 1.9 lbs.

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
12 in.	f/5.6	4.5 in. Pan	Perkin-Elmer Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	2.5	5	7.5	10	12.5												

FILM Kodak 8401 TARGET CONTRAST 1000:1 FILTER W 12

RADIAL	90	95	90	82	75	58												
TANGENTIAL	90	85	85	85	78	54												

AWAR 80 L/mm

FILM Kodak 8401 TARGET CONTRAST 2:1 FILTER W 12

RADIAL	58	64	60	59	56	33												
TANGENTIAL	58	64	60	60	45	48												

AWAR 55 L/mm

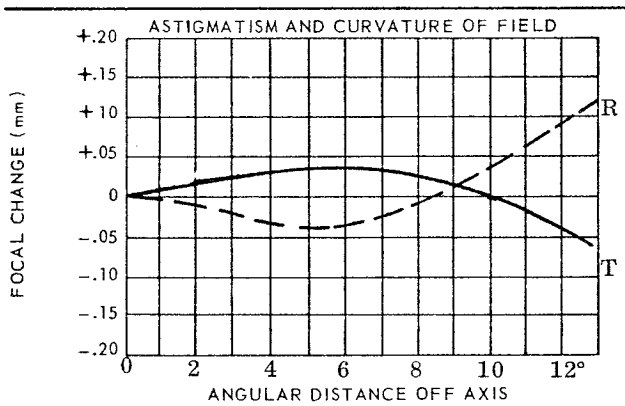
FILM _____ TARGET CONTRAST _____ FILTER _____

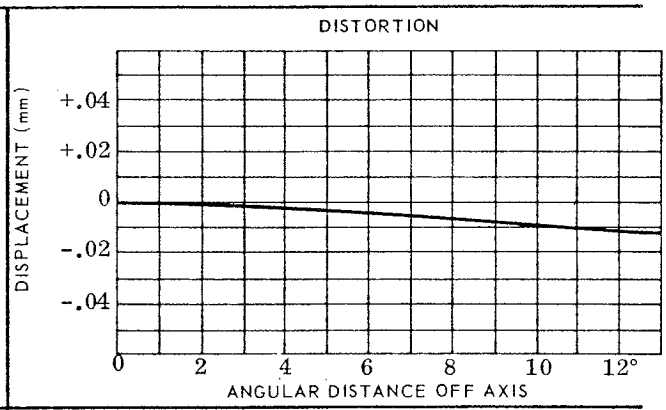
RADIAL																		
TANGENTIAL																		

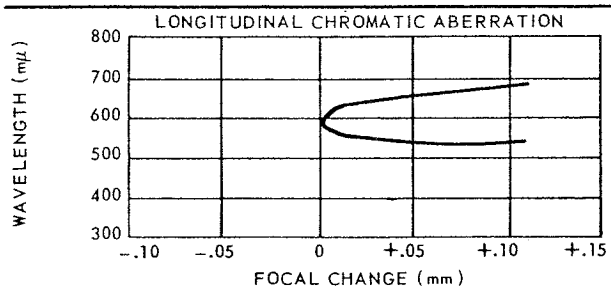
AWAR _____ L/mm

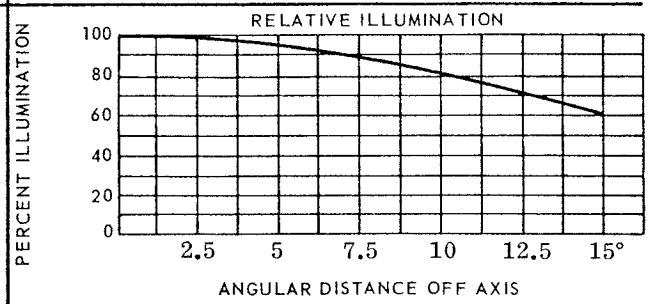
VISUAL _____ TARGET CONTRAST _____ FILTER _____

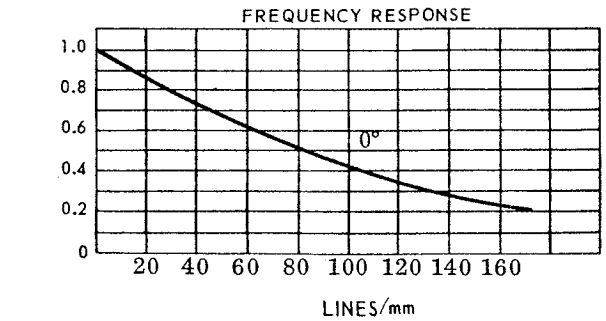
RADIAL																		
TANGENTIAL																		

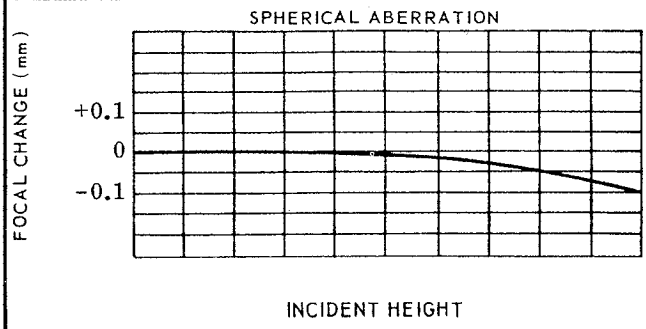












LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

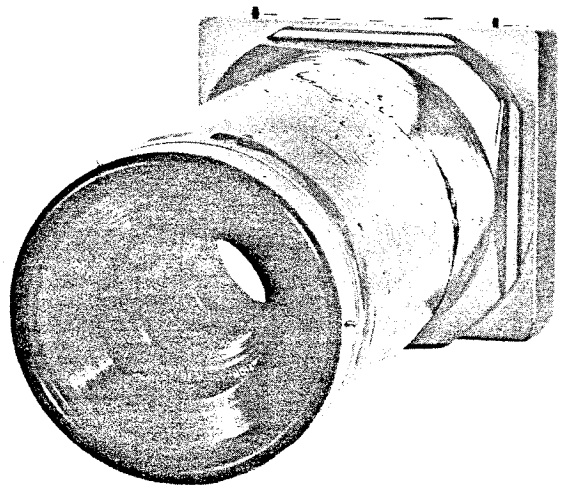
DATE
15 Sept. 1967

TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
12 in.	f/5.6	4.5 in. x 4.5 in.	Photronics Corp.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 12 in. (304.8 mm)	TRANSMITTANCE
BACK FOCAL DISTANCE	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)*
SEMI-FIELD ANGLE 12.5°	OVERALL LENGTH
RELATIVE APERTURE f/5.6	WEIGHT

REMARKS:

Used on the following aircraft cameras: HR-235

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
12 in.	f/5.6	4.5 in. x 4.5 in.	Photronics Corp.

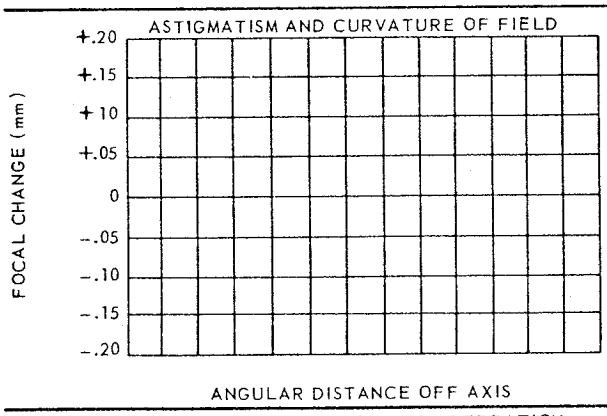
Photographic Resolving Power in Lines /mm

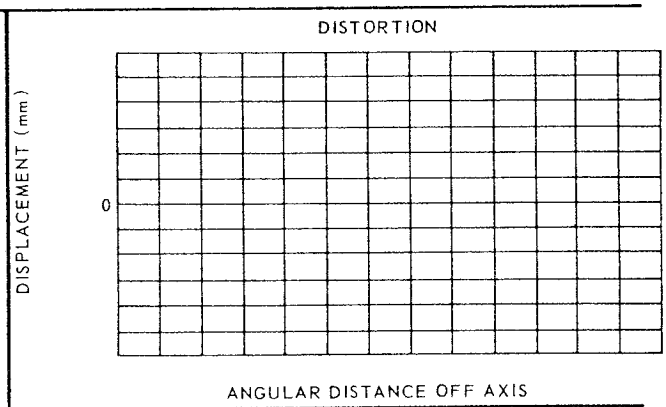
FIELD ANGLE (°)	0	2.5	5	7.5	10	12.5												
FILM SO-213 TARGET CONTRAST High FILTER W-12																		
RADIAL	112	125	106	95	100	70												
TANGENTIAL	112	118	95	78	70	67												
FILM SO-213 TARGET CONTRAST Medium FILTER W-12																		
RADIAL	89	85	74	70	63	63												
TANGENTIAL	89	85	70	74	63	56												
FILM SO-213 TARGET CONTRAST Low FILTER W-12																		
RADIAL	63	70	63	56	60	45												
TANGENTIAL	63	70	63	50	47	50												
VISUAL TARGET CONTRAST FILTER																		
RADIAL																		
TANGENTIAL																		

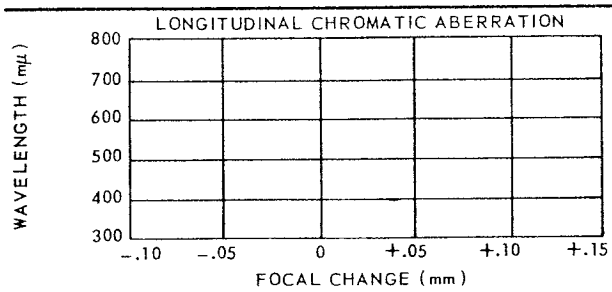
AWAR 87 L/mm

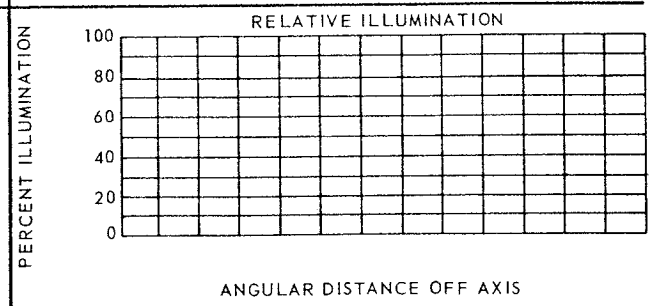
AWAR 68 L/mm

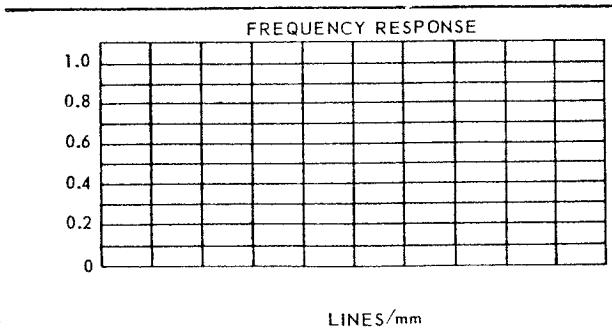
AWAR 55 L/mm

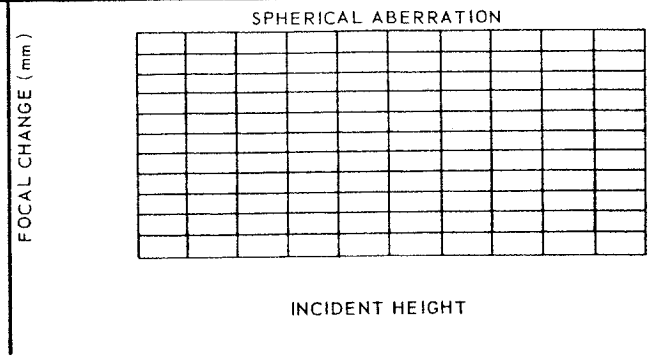












LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

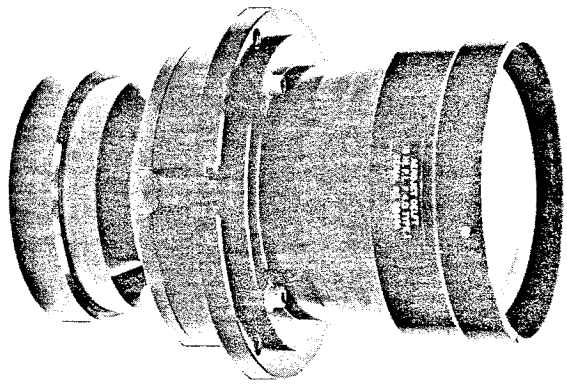
DATE
15 Sept. 1967

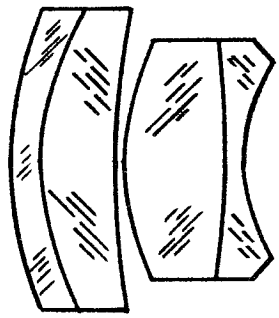
TYPE (MIL-STD-150A)	NAME
Type Aerial Reconnaissance	Deltamar

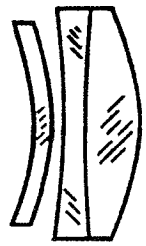
FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
18 in.	f/4.0	4.5 in. x 4.5 in.	Aerojet Delft Corp.

STOCK NO.	SPECIFICATION NO.	STATUS
Aerojet Delft P/N 25AG		Production

GENERAL DESCRIPTION







CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 18 in. (444.3 mm)	TRANSMITTANCE 82%
BACK FOCAL DISTANCE 11.95 in.	COLOR CORRECTION 4900-7000Å
FRONT VERTEX BACK FOCAL DISTANCE 21.03 in.	DISTORTION *(Maximum)* .02%
FLANGE FOCAL DISTANCE 17.53 in.	LENS CELL DIAMETER *(Maximum)* 6.938 in.
SEMI-FIELD ANGLE 10°	OVERALL LENGTH 21.39 in.
RELATIVE APERTURE f/4.0	WEIGHT 14.9 lbs

REMARKS:

Used on the following aircraft cameras: KS-72

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
18 in.	f/4.0	4.5 in. x 4.5 in.	Aerojet Delft Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	2.5	5	7.5	9												

FILM Plus X Aerecon TARGET CONTRAST High FILTER W-12

RADIAL	68	68	63	71	71												
TANGENTIAL	68	72	79	70	70												

AWAR 70 L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

RADIAL																	
TANGENTIAL																	

AWAR _____ L/mm

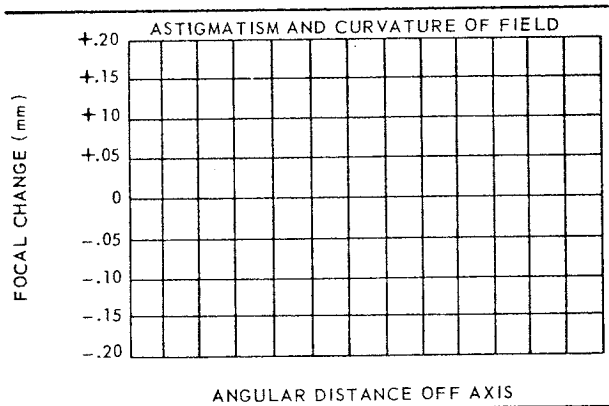
FILM _____ TARGET CONTRAST _____ FILTER _____

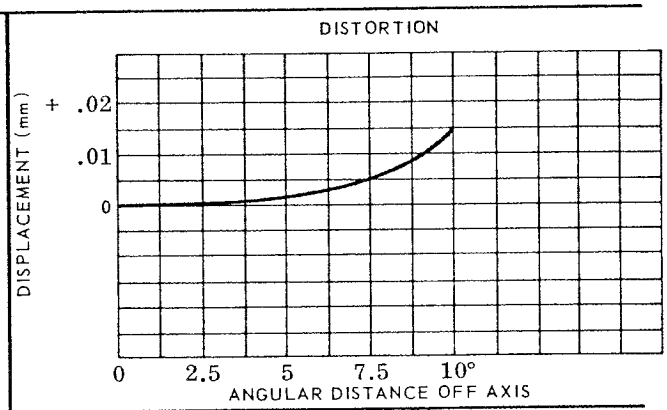
RADIAL																	
TANGENTIAL																	

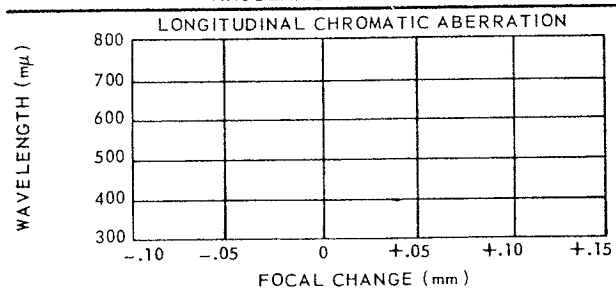
AWAR _____ L/mm

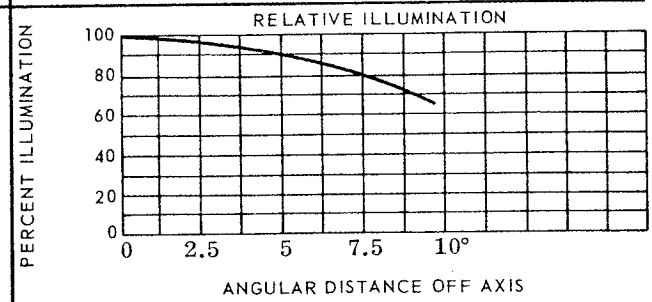
VISUAL _____ TARGET CONTRAST _____ FILTER _____

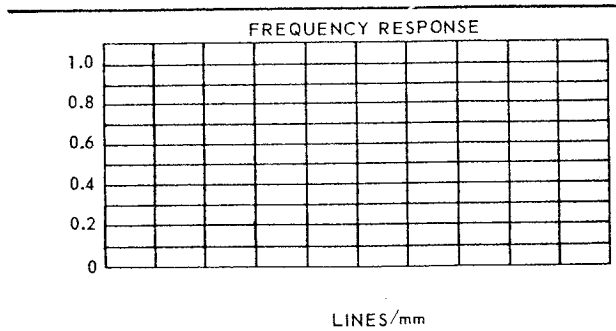
RADIAL																	
TANGENTIAL																	

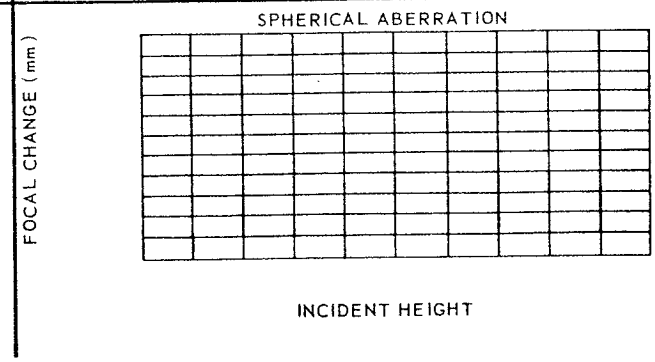












LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

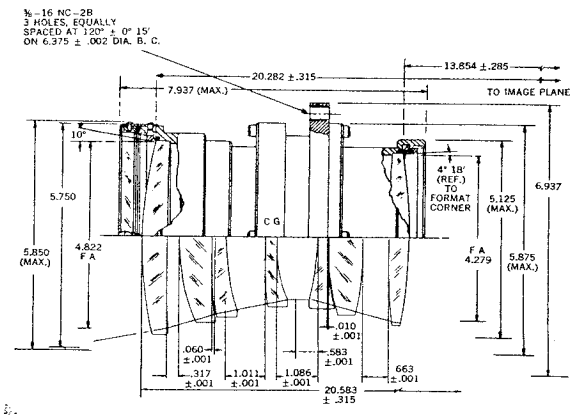
DATE
15 Sept. 1967

TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
18 in.	f/4.0	4.5 in. x 4.5 in.	Bell & Howell Co.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 18 in. (457 mm)	TRANSMITTANCE 75%
BACK FOCAL DISTANCE 13.854 in.	COLOR CORRECTION 5000-7000 Å
FRONT VERTEX BACK FOCAL DISTANCE 21.5 in.	DISTORTION *(Maximum)* 1.0 mm
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)* 5.850 in.
SEMI-FIELD ANGLE 10°	OVERALL LENGTH
RELATIVE APERTURE f/4.0	WEIGHT

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
18 in.	f/4.0	4.5 in. x 4.5 in.	Bell & Howell Co.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)

FILM Plus X Aerecon TARGET CONTRAST High FILTER W-12

RADIAL
TANGENTIAL

AWAR 65 L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

RADIAL
TANGENTIAL

AWAR _____ L/mm

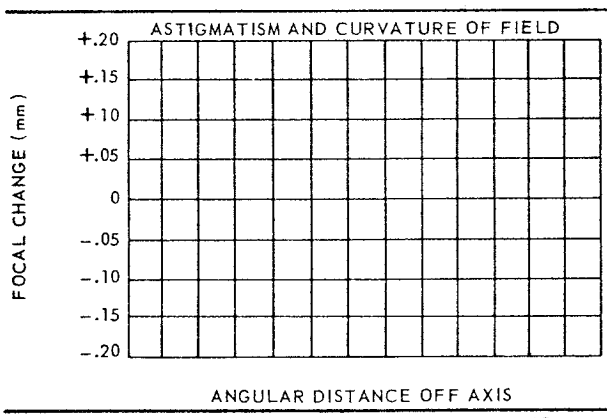
FILM _____ TARGET CONTRAST _____ FILTER _____

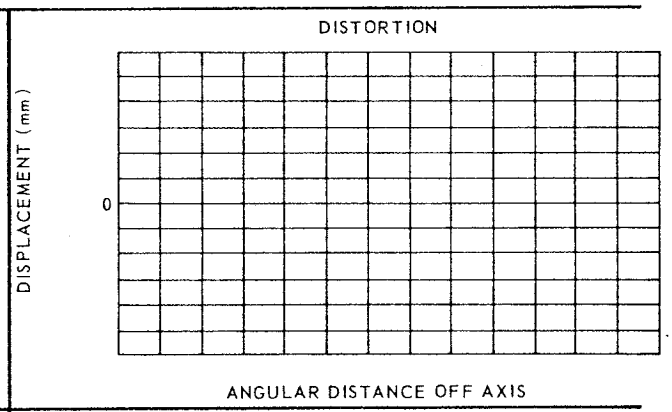
RADIAL
TANGENTIAL

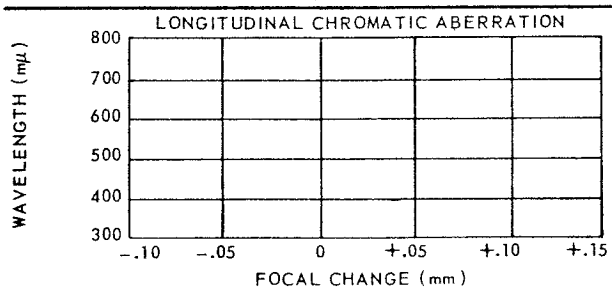
AWAR _____ L/mm

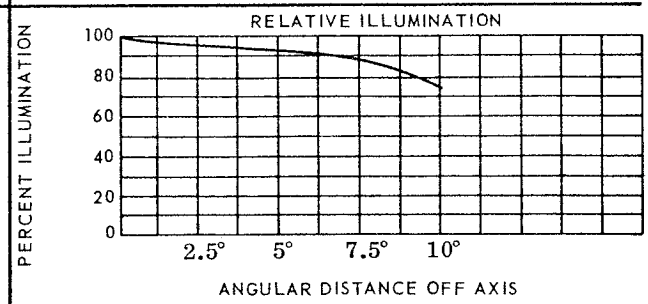
VISUAL _____ TARGET CONTRAST _____ FILTER _____

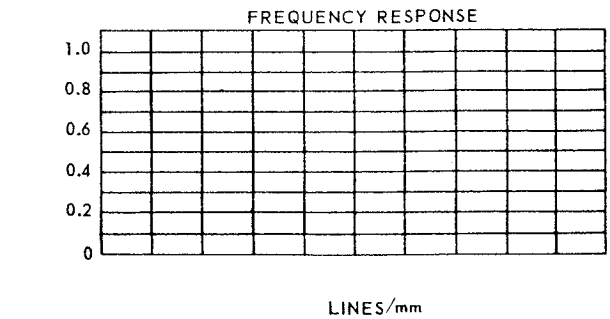
RADIAL
TANGENTIAL

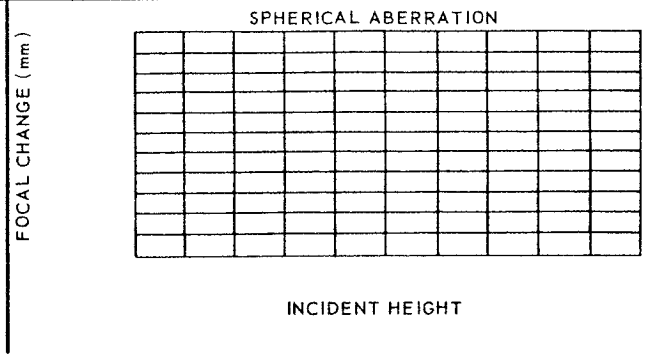












LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

DATE
15 Sept. 1967

TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
18 in.	f/4.0	4.5 in. x 4.5 in.	Fairchild Space & Defense Systems, El Segundo

STOCK NO.	SPECIFICATION NO.	STATUS
Fairchild P/N 12811-AD		Production

GENERAL DESCRIPTION

CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 18 in. (457.2 mm)	TRANSMITTANCE
BACK FOCAL DISTANCE 12.095 in.	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE 24.5163 in.	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE 17.95 in.	LENS CELL DIAMETER *(Maximum)* 7.65 in.
SEMI-FIELD ANGLE 10°	OVERALL LENGTH 12.93 in.
RELATIVE APERTURE f/4.0	WEIGHT

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
18 in.	f/4.0	4.5 in. x 4.5 in.	Fairchild Space & Defense Systems, El Segundo

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0		4		7.5		8.5		10									

FILM Plus X TARGET CONTRAST High FILTER _____

RADIAL	65		65		65		65		60									
TANGENTIAL	65		65		65		65		60									

AWAR _____ L/mm

FILM 3400 TARGET CONTRAST High FILTER _____

RADIAL	130		130		130		130		95									
TANGENTIAL	130		130		130		130		95									

AWAR _____ L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

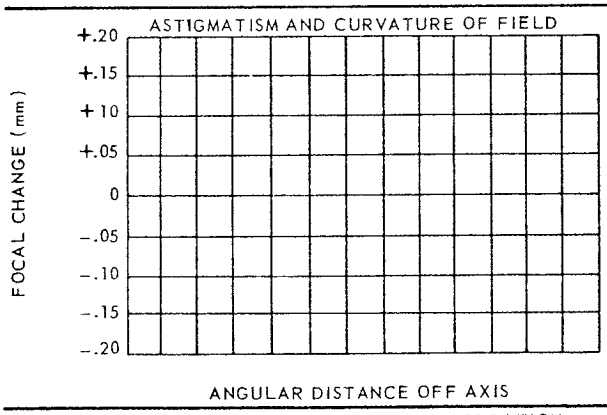
RADIAL																		
TANGENTIAL																		

AWAR _____ L/mm

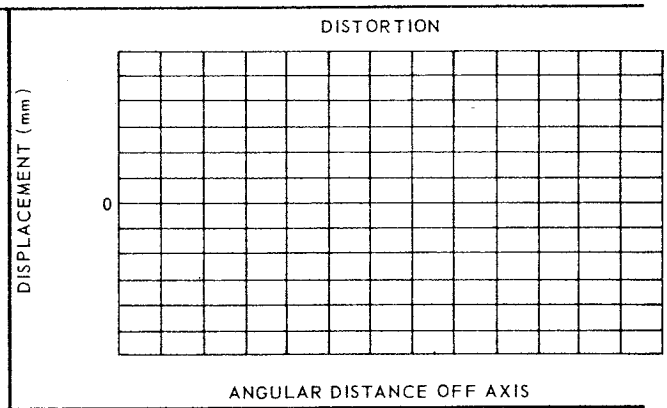
VISUAL _____ TARGET CONTRAST _____ FILTER _____

RADIAL																		
TANGENTIAL																		

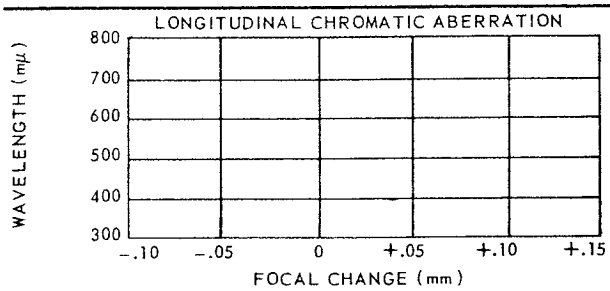
ASTIGMATISM AND CURVATURE OF FIELD



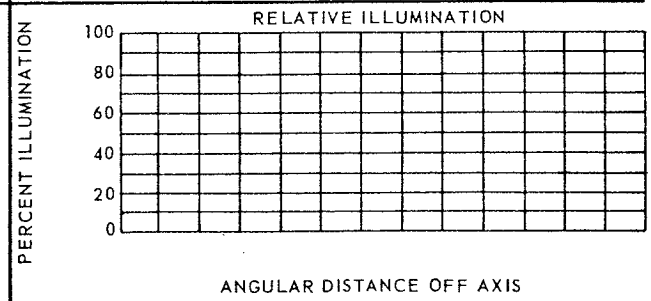
DISTORTION



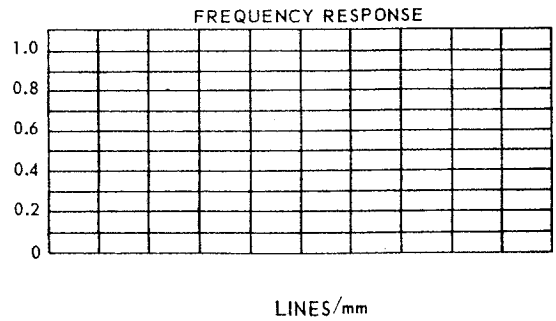
LONGITUDINAL CHROMATIC ABERRATION



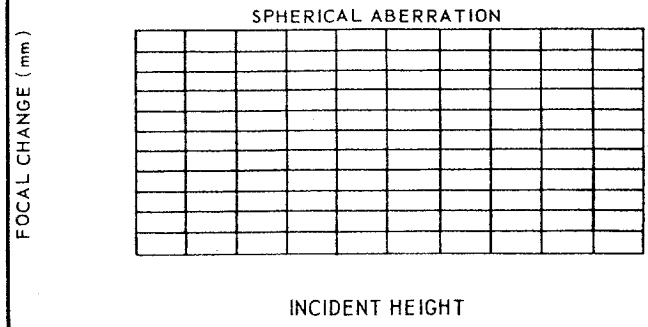
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



SPHERICAL ABERRATION



LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

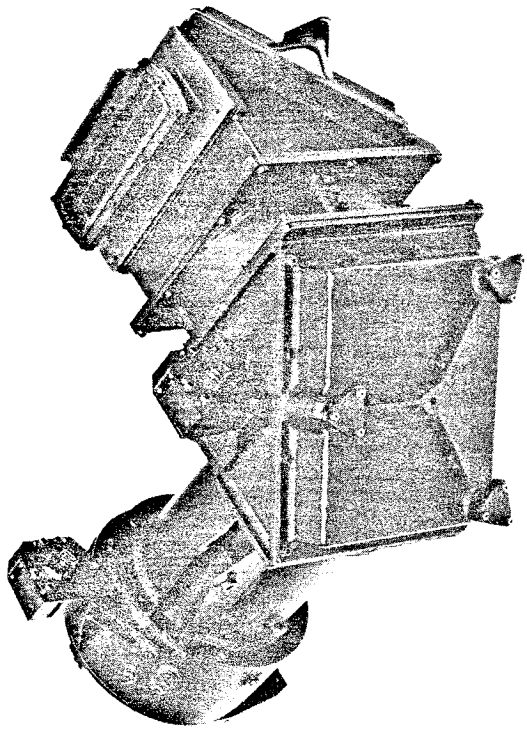
DATE: 15 Sept. 1967

TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	Petzval Lens

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
18 in.	f/4.0	4.5 in. Pan	Perkin-Elmer Corp.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH: 18 in. (457.2 mm)	TRANSMITTANCE: 80%
BACK FOCAL DISTANCE: 0.3 in.	COLOR CORRECTION: 5461-6563 Å (minus blue)
FRONT VERTEX BACK FOCAL DISTANCE: 28 in.	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)*: 6.5 in.
SEMI-FIELD ANGLE: 7°	OVERALL LENGTH: 28 in.
RELATIVE APERTURE: f/4.0	WEIGHT: 42 lb

REMARKS:

Used on the following aircraft cameras: KS-69A

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
18 in.	f/4.0	4.5 in. Pan	Perkin-Elmer Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	2.5	3.75	5.0	6.25												

FILM SO 132 TARGET CONTRAST 1000:1 FILTER W-12

RADIAL	250	160	160	135	129												
TANGENTIAL	250	279	239	238	237												

AWAR 209 L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

RADIAL																	
TANGENTIAL																	

AWAR _____ L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

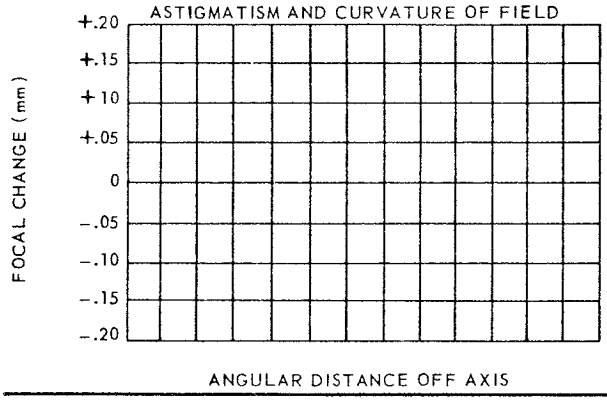
RADIAL																	
TANGENTIAL																	

AWAR _____ L/mm

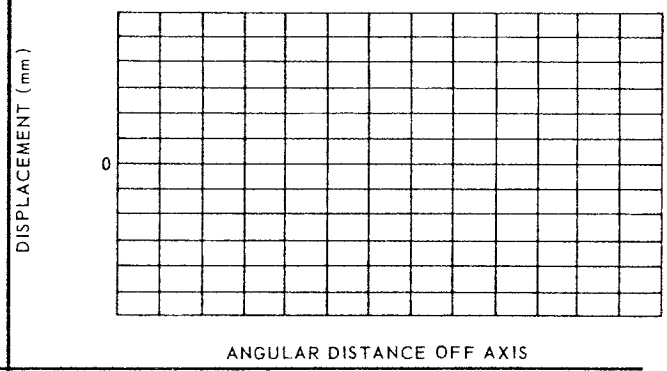
VISUAL _____ TARGET CONTRAST _____ FILTER _____

RADIAL																	
TANGENTIAL																	

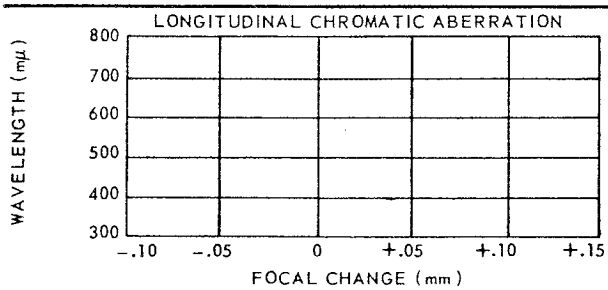
ASTIGMATISM AND CURVATURE OF FIELD



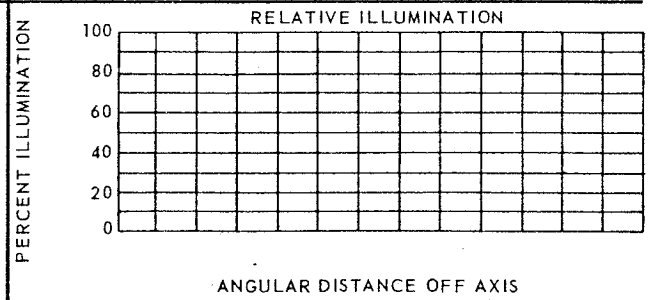
DISTORTION



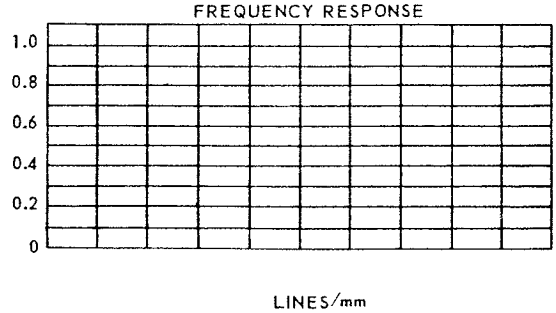
LONGITUDINAL CHROMATIC ABERRATION



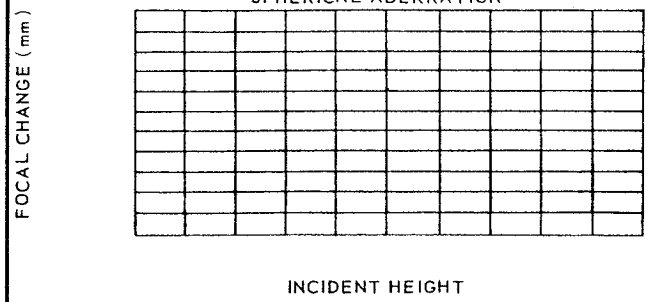
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



SPHERICAL ABERRATION



LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

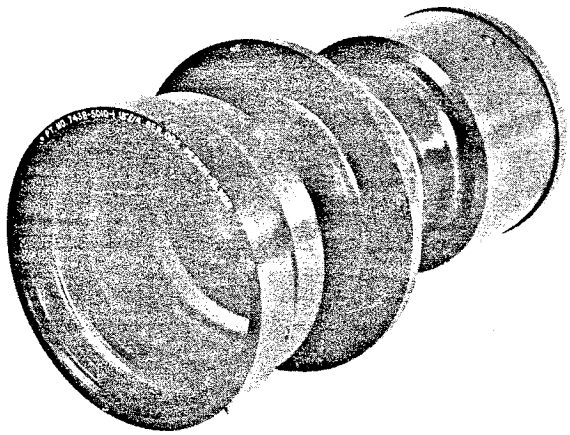
DATE
15 Sept. 1967

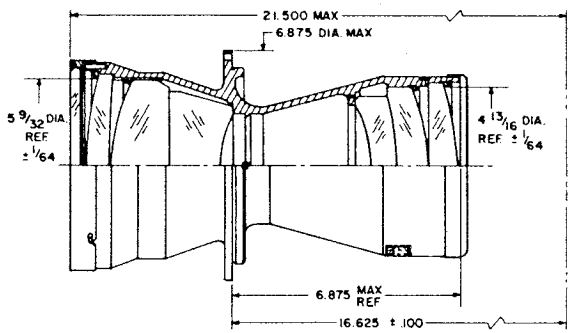
TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	RECON 640

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
18 in.	f/4.0	4.5 in. x 4.5 in.	Perkin-Elmer Corp.

STOCK NO.	SPECIFICATION NO.	STATUS
		Current

GENERAL DESCRIPTION





CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 18 in. (457.2 mm)	TRANSMITTANCE 80%
BACK FOCAL DISTANCE 10.8 in. (256 mm)	COLOR CORRECTION 5461 - 6563 Å
FRONT VERTEX BACK FOCAL DISTANCE 21.06 in. (535 mm)	DISTORTION *(Maximum)* 50 microns
FLANGE FOCAL DISTANCE 16.6 in. (422 mm)	LENS CELL DIAMETER *(Maximum)* 6.14 in. (156 mm)
SEMI-FIELD ANGLE 10°	OVERALL LENGTH 11 in. (280 mm)
RELATIVE APERTURE f/4.0	WEIGHT 18.6 lbs.

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
18 in.	f/4.0	4.5 in. x 4.5 in.	Perkin-Elmer Corp.

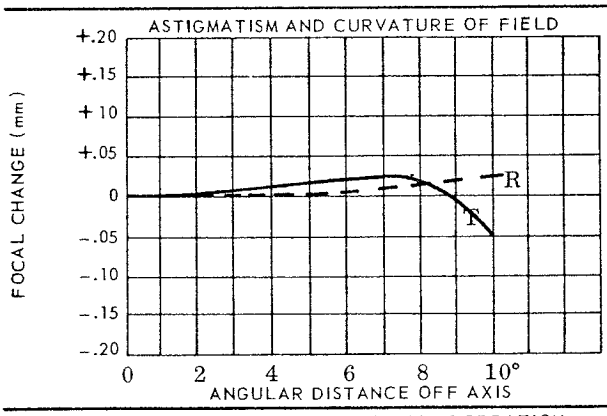
Photographic Resolving Power in Lines /mm

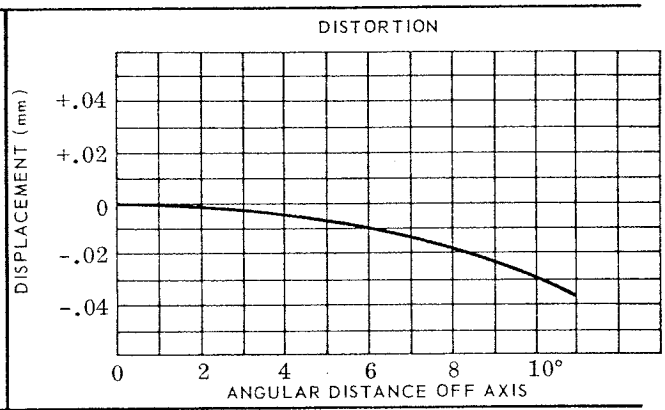
FIELD ANGLE (°)	0	2.5	5	7.5	10												
FILM Kodak SO-130 TARGET CONTRAST 1000:1 FILTER W 12																	
RADIAL	113	113	113	100	90												
TANGENTIAL	113	113	101	79	78												
FILM Kodak 3404 TARGET CONTRAST 1000:1 FILTER W 12																	
RADIAL	202	224	190	200	141												
TANGENTIAL	202	210	210	200	130												
FILM Kodak 8401 TARGET CONTRAST 1000:1 FILTER W 12																	
RADIAL	76	71	86	67	67												
TANGENTIAL	76	71	72	72	55												
VISUAL TARGET CONTRAST FILTER																	
RADIAL																	
TANGENTIAL																	

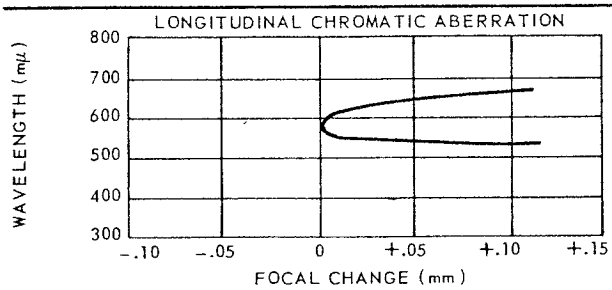
AWAR 100 L/mm

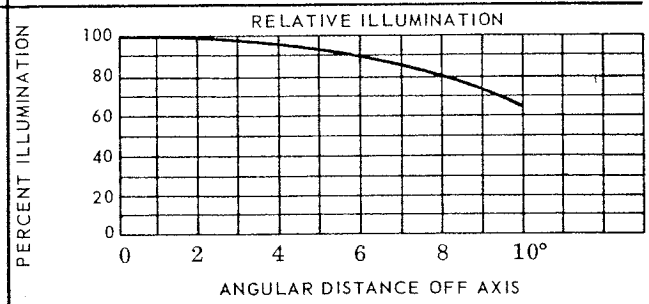
AWAR 201 L/mm

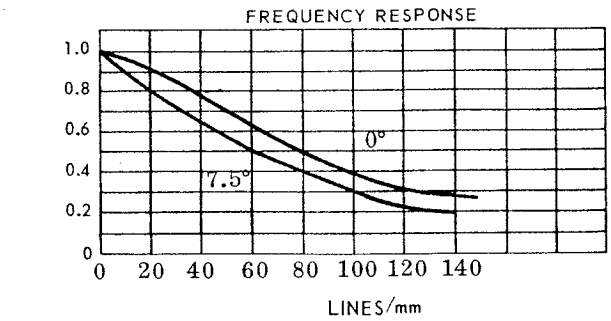
AWAR 73 L/mm

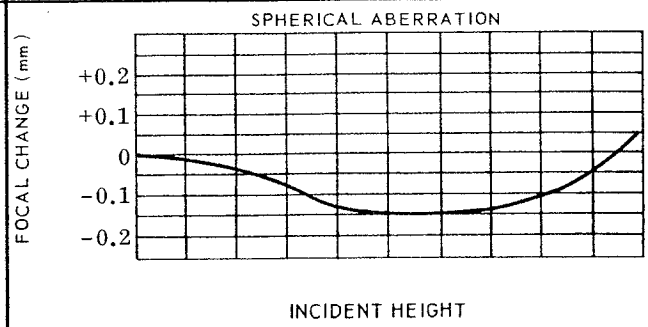












LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

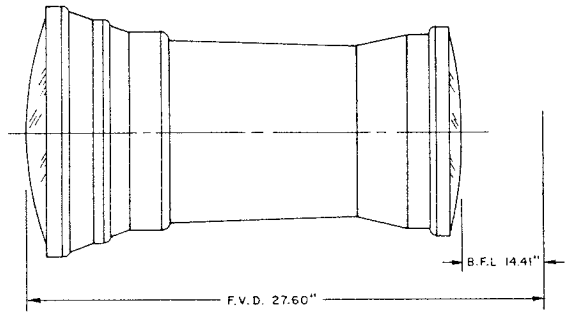
DATE: 15 Sept. 1967

TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	RECON 630

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/3.5	4.5 in. x 4.5 in.	Perkin-Elmer Corp.

STOCK NO.	SPECIFICATION NO.	STATUS
		Current

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 24 in. (610 mm)	TRANSMITTANCE 75%
BACK FOCAL DISTANCE 14.4 in. (366 mm	COLOR CORRECTION 5461-6563 Å
FRONT VERTEX BACK FOCAL DISTANCE 27.2 in. (701 mm)	DISTORTION *(Maximum)* 10 microns
FLANGE FOCAL DISTANCE 21.06 in. (535 mm)	LENS CELL DIAMETER *(Maximum)* 8 in. (200 mm)
SEMI-FIELD ANGLE 7.5°	OVERALL LENGTH 13.5 in. (345 mm)
RELATIVE APERTURE f/3.5	WEIGHT 25 lbs.

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/3.5	4.5 in. x 4.5 in.	Perkin-Elmer Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	2.5	5	7.5														
FILM Kodak 3404 TARGET CONTRAST 1000:1 FILTER W 12																		
RADIAL	240	240	220	200														
TANGENTIAL	240	240	210	190														

AWAR 220 L/mm

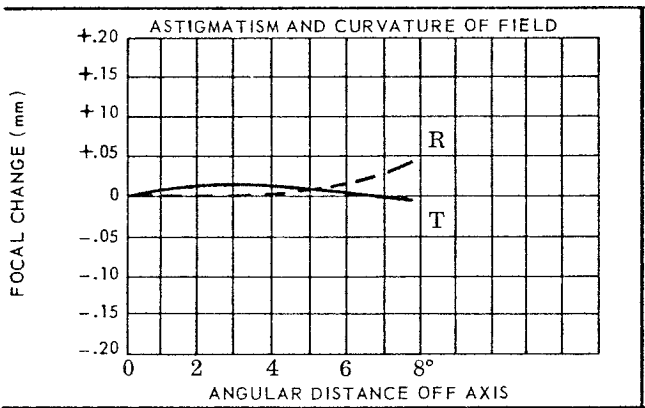
FILM ____ TARGET CONTRAST ____ FILTER ____																		
RADIAL																		
TANGENTIAL																		

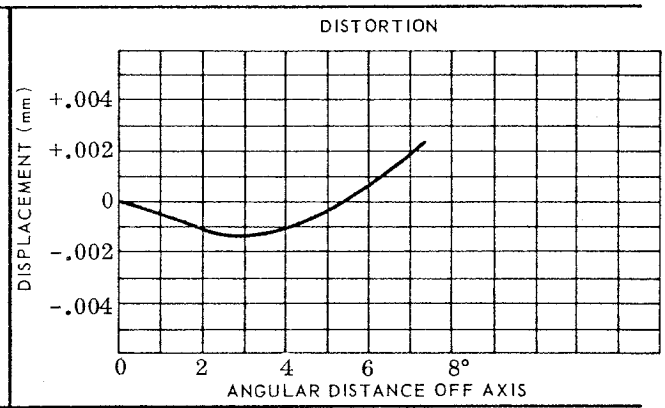
AWAR ____ L/mm

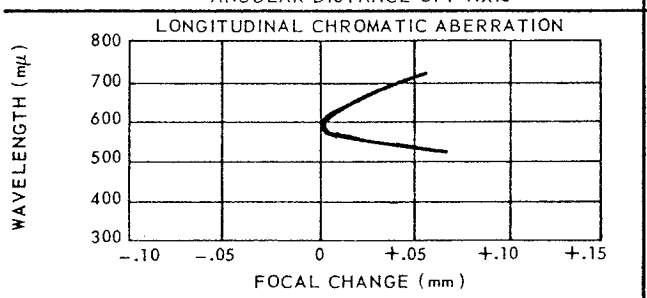
FILM ____ TARGET CONTRAST ____ FILTER ____																		
RADIAL																		
TANGENTIAL																		

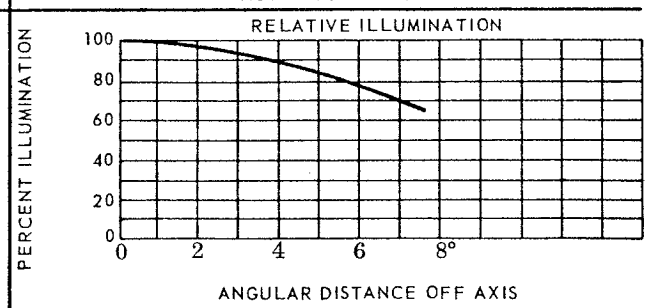
AWAR ____ L/mm

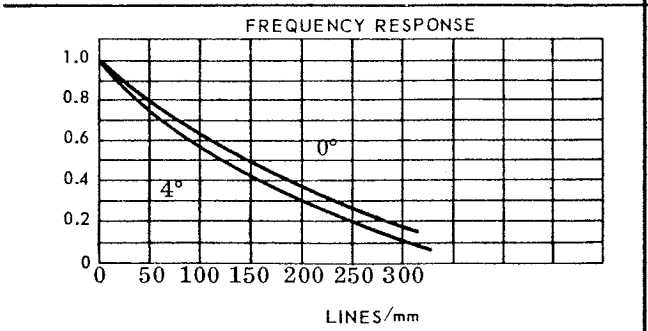
VISUAL ____ TARGET CONTRAST ____ FILTER ____																		
RADIAL																		
TANGENTIAL																		

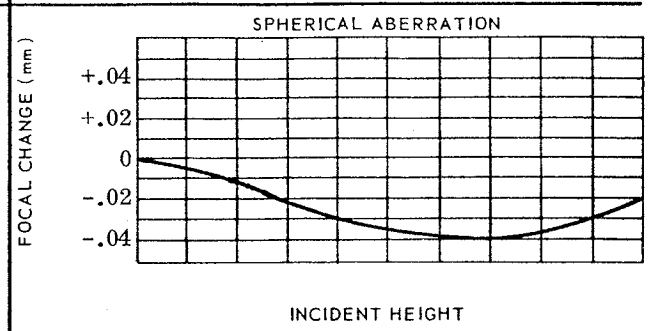












LENS DATA INFORMATION SHEET

(Reference MIL–STD–150A for definition of terms and methods of measurement)

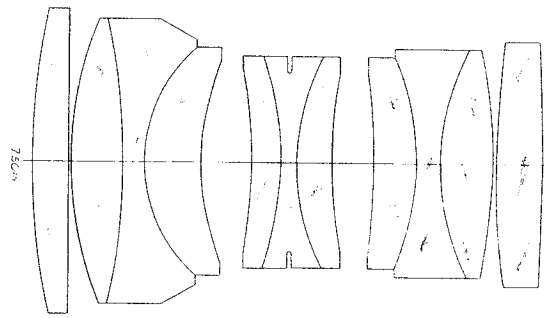
DATE
15 Sept. 1967

TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	Apochromat

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/4.0	4.5 in.	J. G. Baker

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 24 in. (609.6 mm)	TRANSMITTANCE
BACK FOCAL DISTANCE 17.188 in.	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)*
SEMI-FIELD ANGLE 7.5°	OVERALL LENGTH 12.43 in.
RELATIVE APERTURE f/4.0	WEIGHT

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/4.0	4.5 in.	J. G. Baker

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	3	4.5	6	7.5												

FILM SO 243 TARGET CONTRAST High FILTER

RADIAL	177	177	151	120	140												
TANGENTIAL	151	151	120	81	75												

AWAR 144 L/mm

FILM SO 213 TARGET CONTRAST High FILTER

RADIAL	120	120	103	95	75												
TANGENTIAL	95	111	81	70	55												

AWAR 99 L/mm

FILM TARGET CONTRAST FILTER

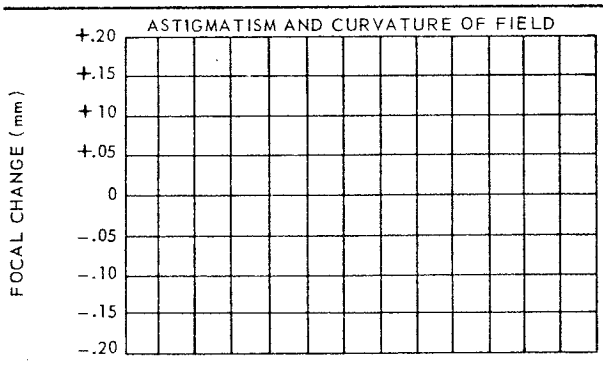
RADIAL																	
TANGENTIAL																	

AWAR L/mm

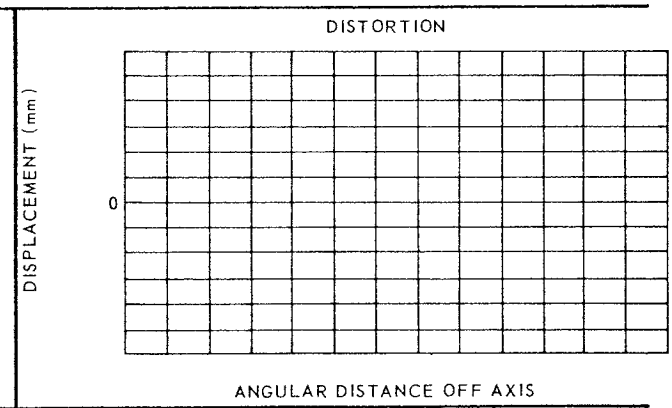
VISUAL TARGET CONTRAST FILTER

RADIAL																	
TANGENTIAL																	

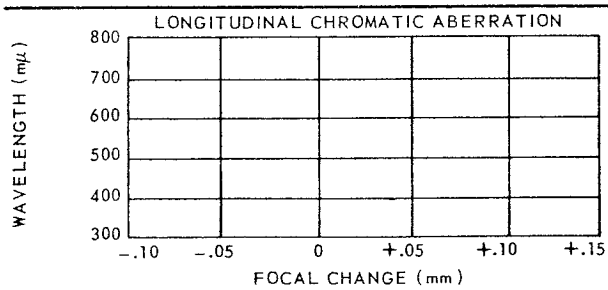
ASTIGMATISM AND CURVATURE OF FIELD



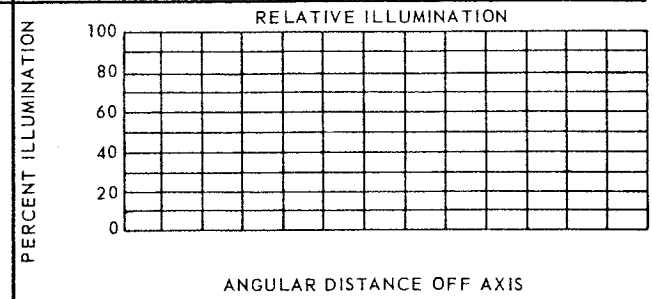
DISTORTION



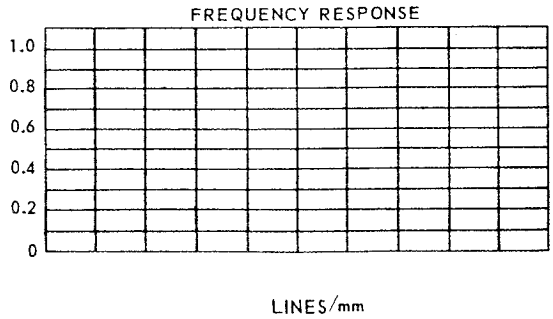
LONGITUDINAL CHROMATIC ABERRATION



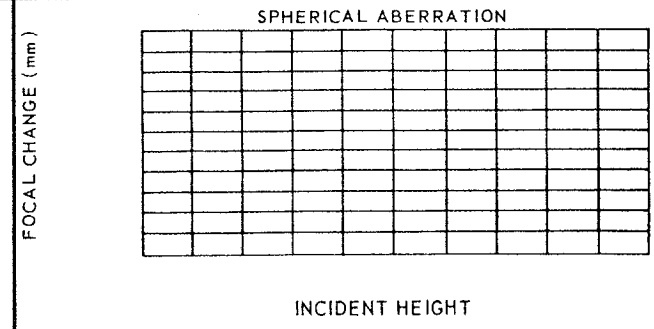
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



SPHERICAL ABERRATION



LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

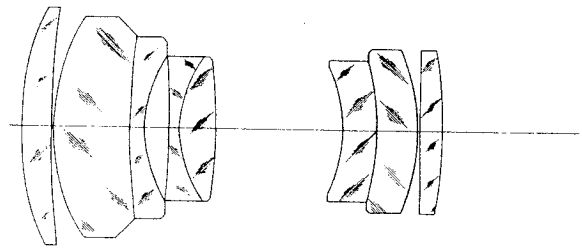
DATE
15 Sept. 1967

TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	Double Gauss

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/4.0	4.5 in. Pan	Perkin-Elmer Corp.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 24 in. (609.6 mm)	TRANSMITTANCE 85%
BACK FOCAL DISTANCE 13.87 in.	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE 27.60 in.	DISTORTION *(Maximum)* 10 Microns
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)* 7.86 in.
SEMI-FIELD ANGLE 5.35°	OVERALL LENGTH 13.73 in.
RELATIVE APERTURE f/4.0	WEIGHT

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/4.0	4.5 in. Pan	Perkin-Elmer Corp.

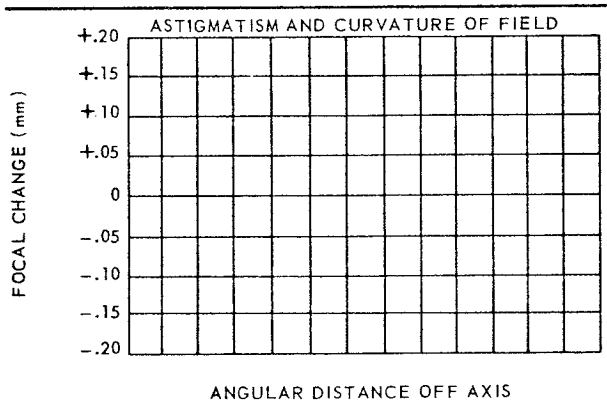
Photographic Resolving Power in Lines /mm

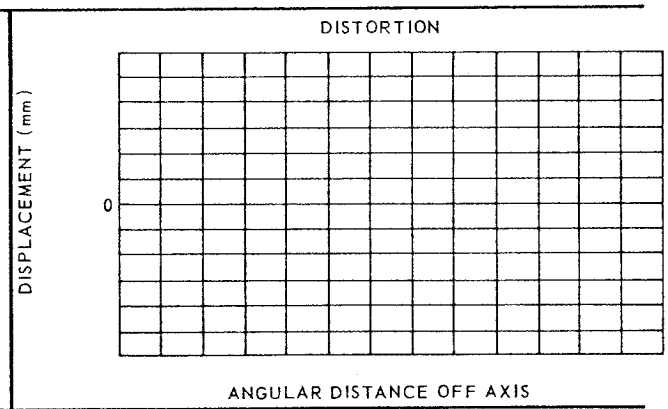
FIELD ANGLE (°)	0	30	5.35															
FILM 3404 TARGET CONTRAST High FILTER ____																		
RADIAL	250	250	230															
TANGENTIAL	250	250	230															
FILM ____ TARGET CONTRAST ____ FILTER ____																		
RADIAL																		
TANGENTIAL																		
FILM ____ TARGET CONTRAST ____ FILTER ____																		
RADIAL																		
TANGENTIAL																		
VISUAL ____ TARGET CONTRAST ____ FILTER ____																		
RADIAL																		
TANGENTIAL																		

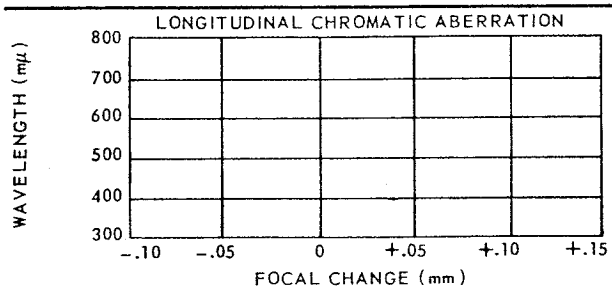
AWAR ____ L/mm

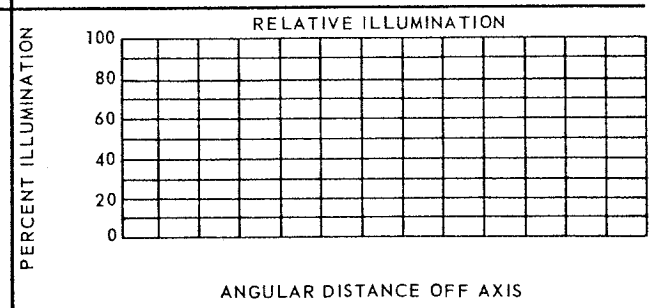
AWAR ____ L/mm

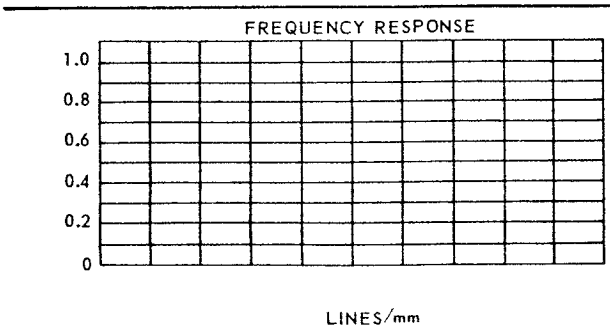
AWAR ____ L/mm

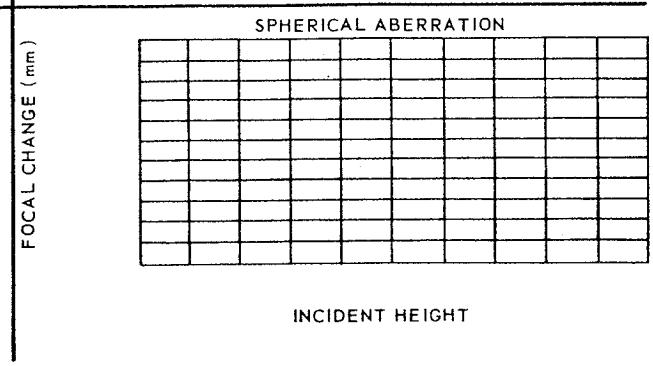












LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

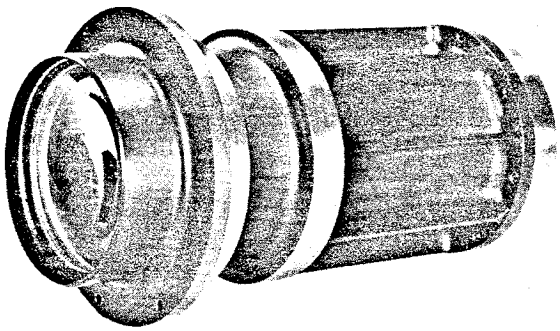
DATE
15 Sept. 1967

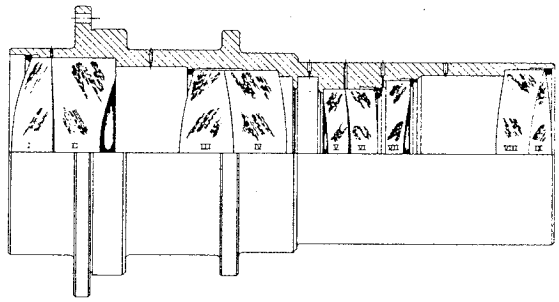
TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/5.0	4.5 in. x .5 in. slit	Fairchild Space & Defense Systems, El Segundo

STOCK NO.	SPECIFICATION NO.	STATUS
Fairchild P/N 13419-AD		Production

GENERAL DESCRIPTION





CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 24 in. (609.6 mm)	TRANSMITTANCE
BACK FOCAL DISTANCE 13.4416 in.	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE 28.2598 in.	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE 26.0 in.	LENS CELL DIAMETER *(Maximum)* 7.93 in.
SEMI-FIELD ANGLE 7.5°	OVERALL LENGTH 14.97 in.
RELATIVE APERTURE f/5.0	WEIGHT 49.6 lb

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/5.0	4.5 in. x .5 in. slit	Fairchild Space & Defense Systems, El Segundo

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	1.25	2.5	3.75	5	6.25	7.5										

FILM SO 226 TARGET CONTRAST _____ FILTER W-21

RADIAL	141	141	141	134	136	134	86										
TANGENTIAL	178	169	126	136	119	119	82										

AWAR 131 L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

RADIAL																	
TANGENTIAL																	

AWAR _____ L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

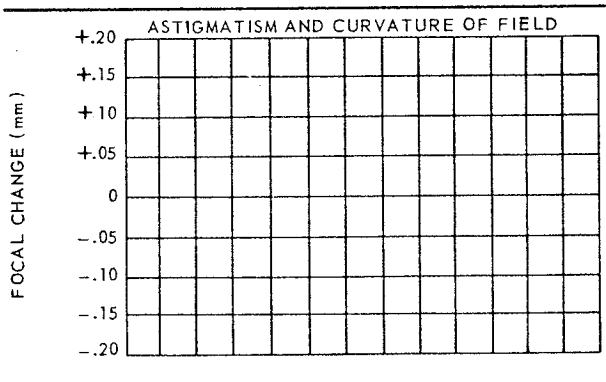
RADIAL																	
TANGENTIAL																	

AWAR _____ L/mm

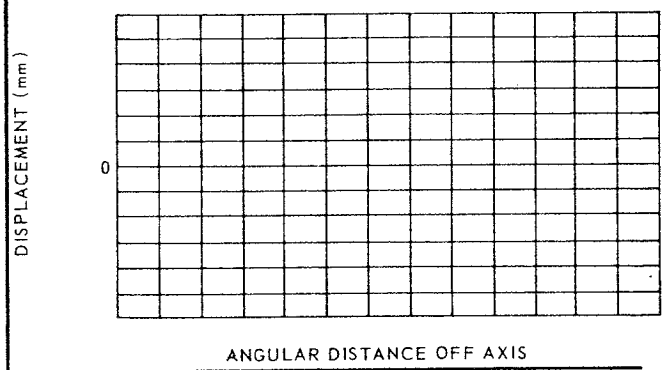
VISUAL _____ TARGET CONTRAST _____ FILTER _____

RADIAL																	
TANGENTIAL																	

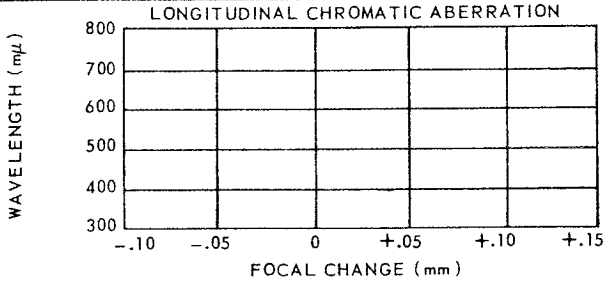
ASTIGMATISM AND CURVATURE OF FIELD



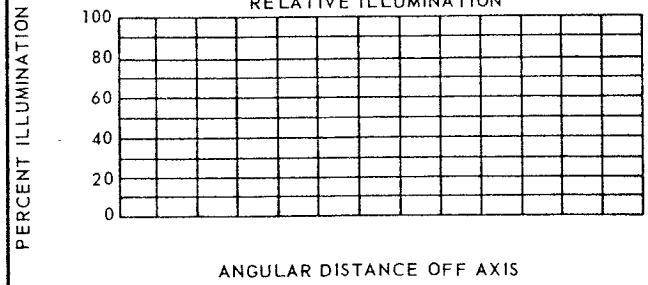
DISTORTION



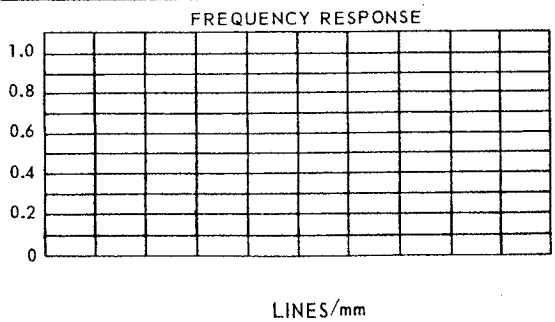
LONGITUDINAL CHROMATIC ABERRATION



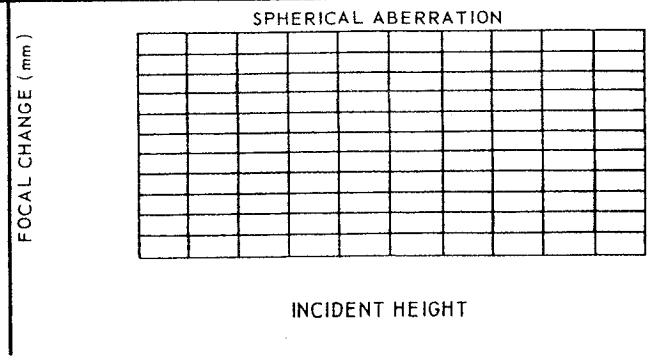
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



SPHERICAL ABERRATION



LENS DATA INFORMATION SHEET

(Reference MIL–STD–150A for definition of terms and methods of measurement)

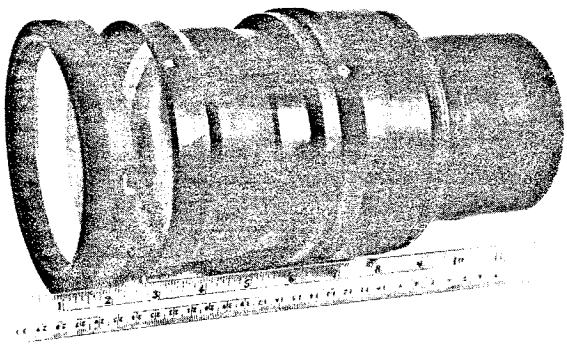
DATE: 15 Sept. 1967

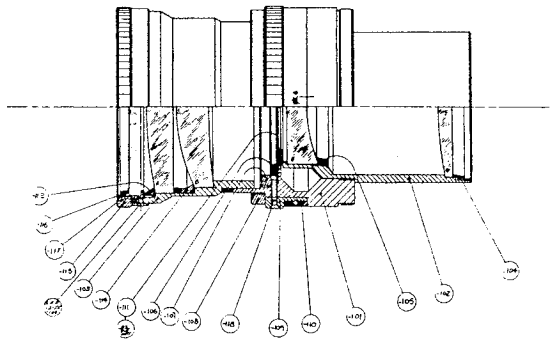
TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/5.6	4.5 in. x 4.5 in.	Bausch & Lomb, Inc.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION





CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 24 in. (615.1 mm)	TRANSMITTANCE 76%
BACK FOCAL DISTANCE 8.6 in. (218.4 mm)	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE 21.5 in. (547.10 mm)	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE 14 in. (355.3 mm)	LENS CELL DIAMETER *(Maximum)*
SEMI-FIELD ANGLE 7.5°	OVERALL LENGTH
RELATIVE APERTURE f/5.6	WEIGHT 19.25 lbs

REMARKS:

Used on the following aircraft cameras: KA-9A

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/5.6	4.5 in. x 4.5 in.	Bausch & Lomb, Inc.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	2.5	5	7.5													

FILM Aerographic Super XX TARGET CONTRAST High FILTER W-12

RADIAL	38	35	34	32													
TANGENTIAL	47	37	35	26													

AWAR _____ L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

RADIAL																	
TANGENTIAL																	

AWAR _____ L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

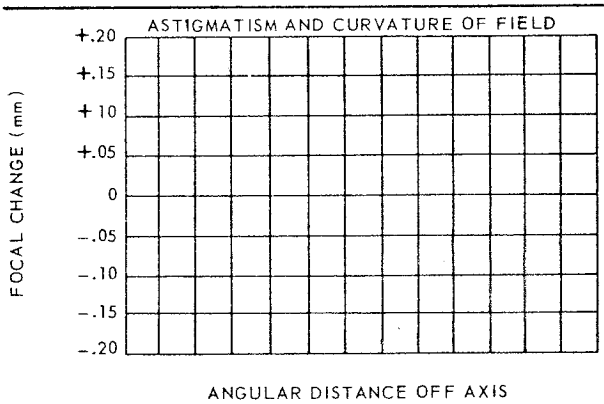
RADIAL																	
TANGENTIAL																	

AWAR _____ L/mm

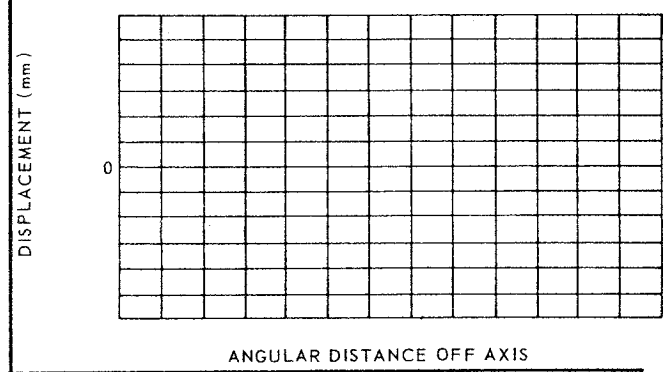
VISUAL _____ TARGET CONTRAST _____ FILTER _____

RADIAL																	
TANGENTIAL																	

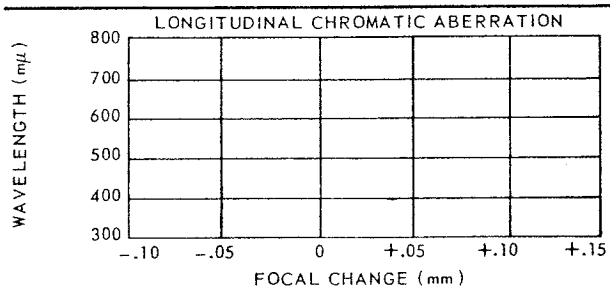
ASTIGMATISM AND CURVATURE OF FIELD



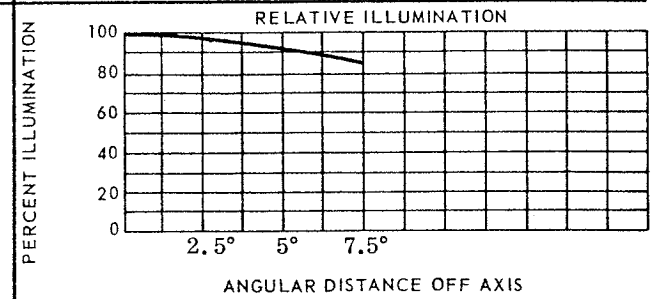
DISTORTION



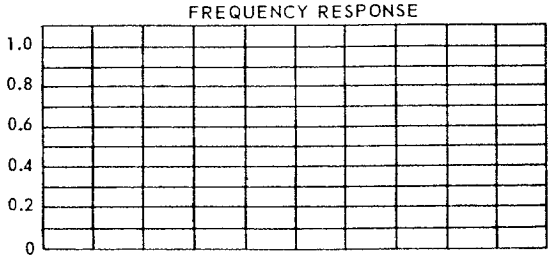
LONGITUDINAL CHROMATIC ABERRATION



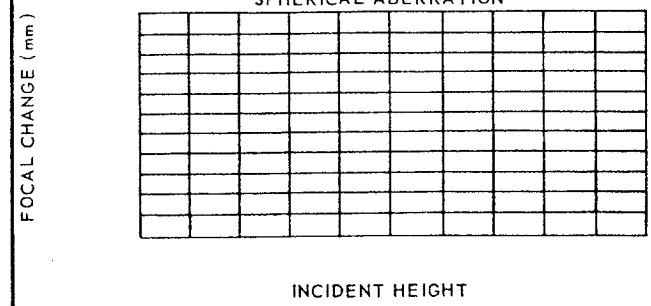
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



SPHERICAL ABERRATION



LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

DATE
15 Sept. 1967

TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	Paxoramic

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/5.6	4.5 in. x 4.5 in.	Pacific Optical Corp.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION

CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 24 in. (609 mm)	TRANSMITTANCE 70% (T6.7)
BACK FOCAL DISTANCE	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)* 8.5 in.
SEMI-FIELD ANGLE 7.5°	OVERALL LENGTH 11 in.
RELATIVE APERTURE f/5.6	WEIGHT 26.63 lbs.

REMARKS:

Used on the following aircraft cameras: KA-9A

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/5.6	4.5 in. x 4.5 in.	Pacific Optical Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	1.25	2.50	3.75	500	6.25	7.50											
FILM SO 240 TARGET CONTRAST High FILTER ____ AVERAGE RADIAL AND TANGENTIAL																		
FILM SO 240 TARGET CONTRAST Low FILTER ____ AVERAGE RADIAL AND TANGENTIAL	70	73	71	71	69	64	62											
FILM SO 190 TARGET CONTRAST High FILTER ____ AVERAGE RADIAL AND TANGENTIAL	125	119	103	109	96	86	83											
Film SO 190 TARGET CONTRAST Low FILTER ____ RADIAL	44	51	47	48	47	45	43											
TANGENTIAL																		

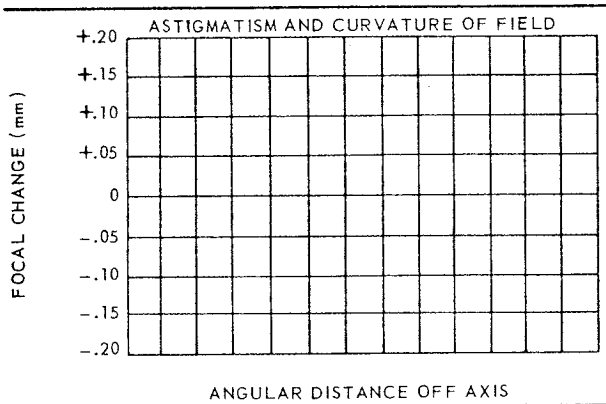
AWAR 141 L/mm

AWAR 69 L/mm

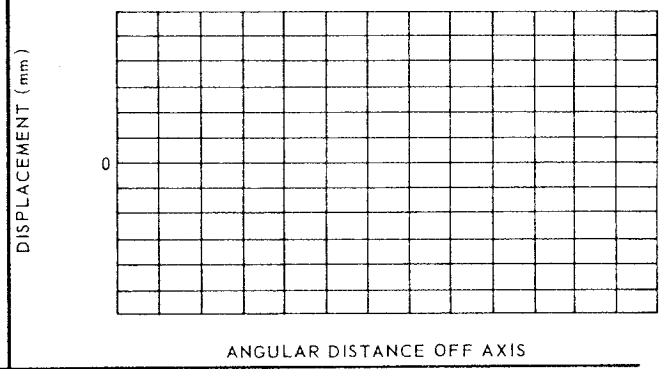
AWAR 101 L/mm

AWAR 47 L/mm

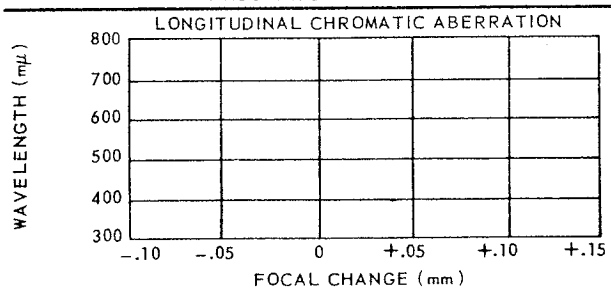
ASTIGMATISM AND CURVATURE OF FIELD



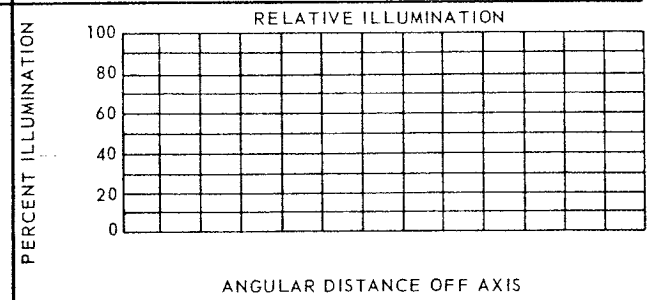
DISTORTION



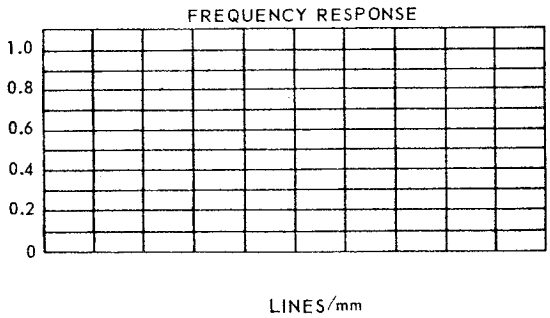
LONGITUDINAL CHROMATIC ABERRATION



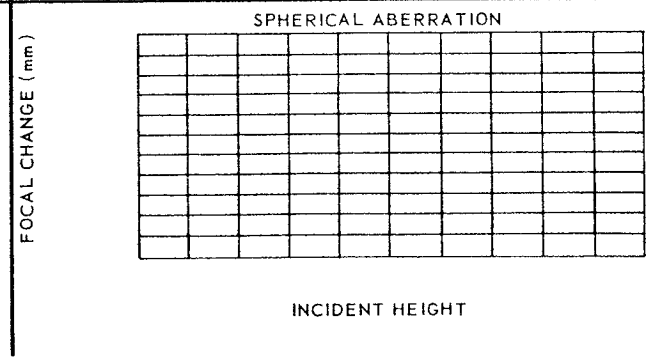
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



SPHERICAL ABERRATION



LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

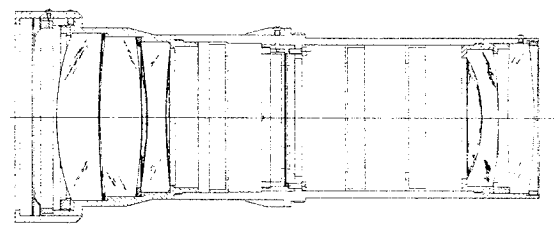
DATE
15 Sept. 1967

TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	Telephoto Aerial Objective

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/5.6	4.5 in. x 4.5 in.	Zenith Optical Div. Polan Industries, Inc.

STOCK NO.	SPECIFICATION NO.	STATUS
Zenith Drawing RD - 1506		

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 24 in. (603 mm)	TRANSMITTANCE
BACK FOCAL DISTANCE 6.865 in.	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE 8.263 in.	LENS CELL DIAMETER *(Maximum)* 5.625 in.
SEMI-FIELD ANGLE 7.5°	OVERALL LENGTH 13.625 in.
RELATIVE APERTURE f/5.6	WEIGHT

REMARKS:

Used on following aircraft cameras: KA-9A

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
24 in.	f/5.6	4.5 in. x 4.5 in.	Zenith Optical Div. Polan Industries, Inc.

Photographic Resolving Power in Lines /mm

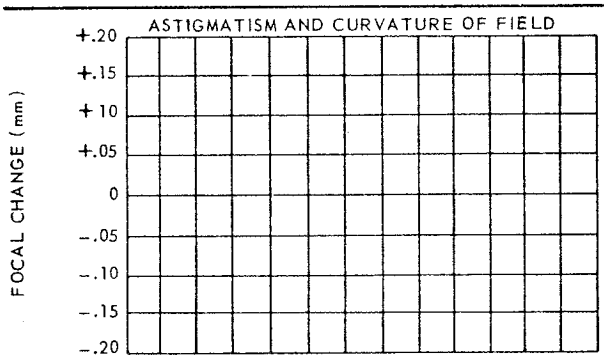
FIELD ANGLE (°)	0	2.5	5	7.5													
FILM Super XX TARGET CONTRAST High FILTER																	
RADIAL	32	37	34	34													
TANGENTIAL	41	39	36	30													
FILM TARGET CONTRAST FILTER																	
RADIAL																	
TANGENTIAL																	
FILM TARGET CONTRAST FILTER																	
RADIAL																	
TANGENTIAL																	
VISUAL TARGET CONTRAST FILTER																	
RADIAL																	
TANGENTIAL																	

AWAR 35 L/mm

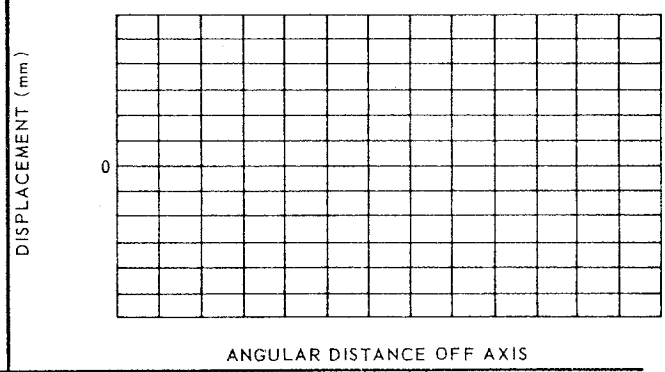
AWAR ____ L/mm

AWAR ____ L/mm

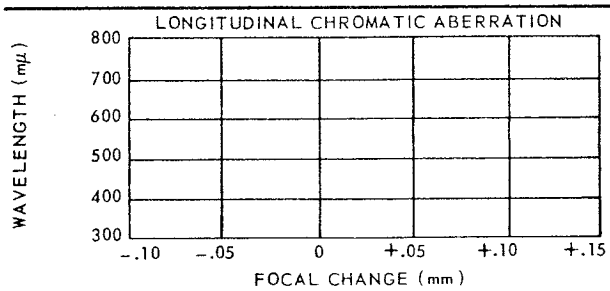
ASTIGMATISM AND CURVATURE OF FIELD



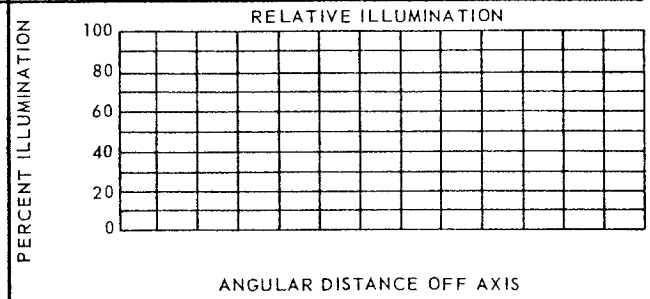
DISTORTION



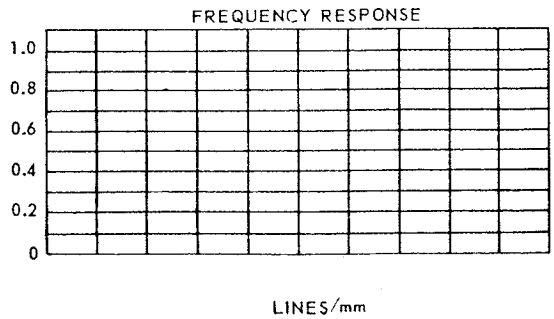
LONGITUDINAL CHROMATIC ABERRATION



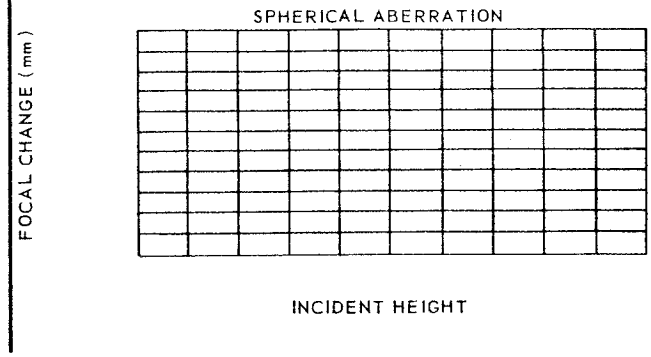
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



SPHERICAL ABERRATION



LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

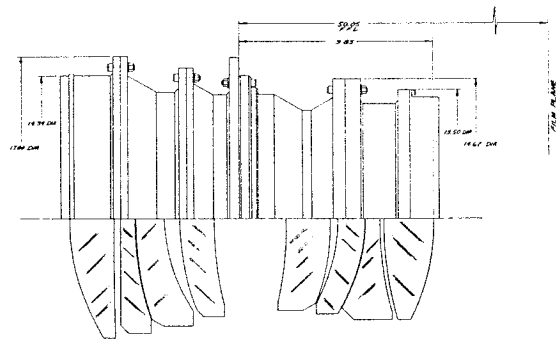
DATE
15 Sept. 1967

TYPE (MIL-STD-150A)	NAME
Type I Aerial Reconnaissance	Paxar

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
48 in.	f/4.0	4.5 in. x 4.5 in.	Pacific Optical Corp.

STOCK NO.	SPECIFICATION NO.	STATUS
Pacific Optical P/N 33350		Development

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 48 in. (1219.2 mm)	TRANSMITTANCE 52%
BACK FOCAL DISTANCE 40.232 in.	COLOR CORRECTION 5000-7000 Å
FRONT VERTEX BACK FOCAL DISTANCE 58.750 in.	DISTORTION *(Maximum)* .05 mm
FLANGE FOCAL DISTANCE 50.05 in.	LENS CELL DIAMETER *(Maximum)* 14.94 in.
SEMI-FIELD ANGLE 4°	OVERALL LENGTH 19 in.
RELATIVE APERTURE f/4.0	WEIGHT 250 lbs.

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
48. in.	f/4.0	4.5 in. x 4.5 in.	Pacific Optical Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)

FILM SO 243 TARGET CONTRAST Med FILTER W12

RADIAL
TANGENTIAL

AWAR 100 L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

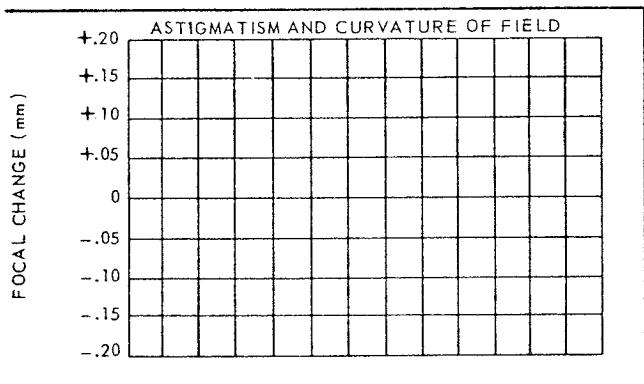
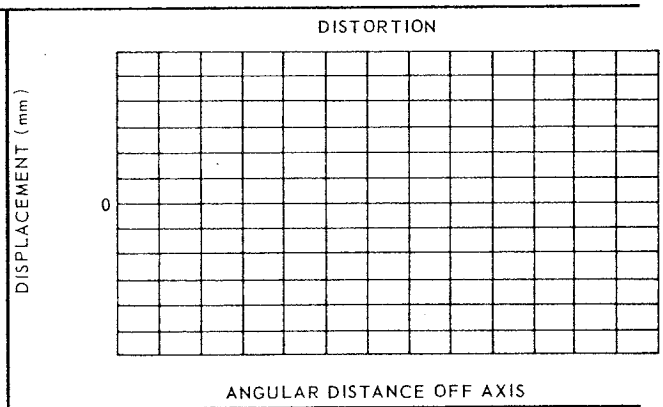
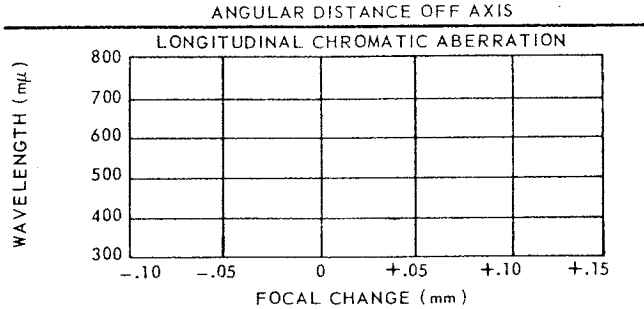
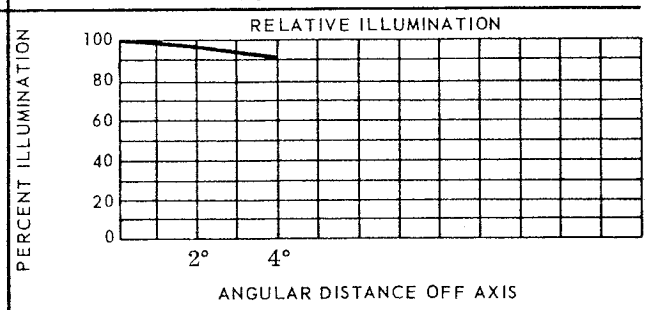
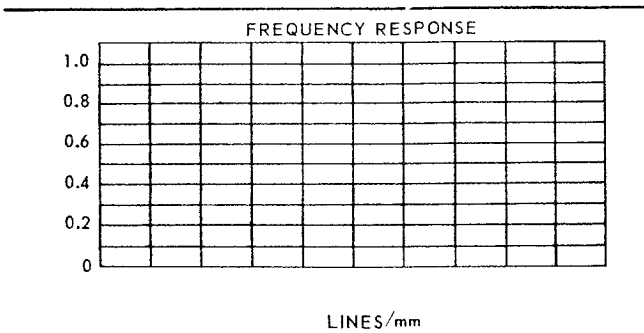
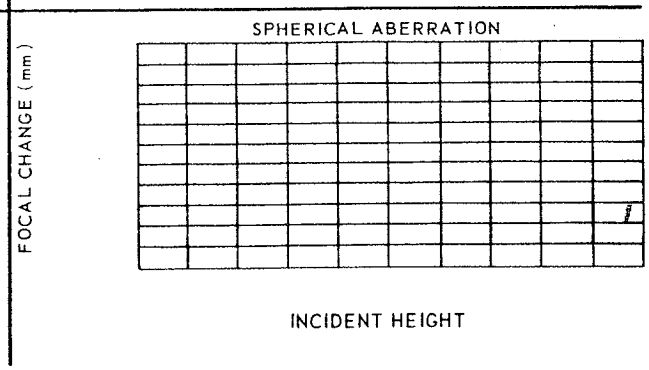
RADIAL
TANGENTIAL

AWAR _____ L/mm

FILM _____ TARGET CONTRAST _____ FILTER _____

RADIAL
TANGENTIAL

AWAR _____ L/mm

VISUAL _____ TARGET CONTRAST _____ FILTER _____

RADIAL
TANGENTIAL